
What is claimed is:

- 5 1. A method for encoding a motion video signal, the method comprising:
 determining a desired size for a first frame of the motion video signal;
 encoding the first frame of the motion video signal to form an encoded frame;
 determining an encoded size of the encoded frame;
 comparing the encoded size to the desired size;
10 adjusting a quantization parameter such that encoding the first frame according to
 the quantization parameter as adjusted would form a different encoded frame having a size
 closer to the desired size than the encoded size is to the desired size; and
 encoding a second frame of the motion video signal according to the quantization
 parameter as adjusted.
- 15 2. The method of Claim 1 wherein the second frame is subsequent to the first frame
 in the motion video signal.
- 20 3. The method of Claim 1 wherein the step of adjusting comprises:
 determining a difference between the encoded size and the desired size; and
 adjusting the quantization parameter by an amount which is proportional to the
 difference.
- 25 4. A method for encoding a motion video signal, the method comprising:
 initializing an accumulated bandwidth record;
 encoding a first frame of the motion video signal to form an encoded frame;
 determining a consumed bandwidth of the encoded frame;
 adjusting the accumulated bandwidth record according to the consumed

bandwidth;

comparing the accumulated bandwidth record to a desired range of acceptable accumulated bandwidth;

adjusting a quantization parameter such that encoding subsequent frames of the motion video signal according to the quantization parameter as adjusted consumes bandwidth in a manner which compensates for a deviation from the desired range of acceptable bandwidth by the accumulated bandwidth record; and

encoding a second frame of the motion video signal according to the quantization parameter as adjusted.

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5. The method of Claim 4 wherein the step of adjusting the accumulated bandwidth record comprises:

adding to the accumulative bandwidth record an amount of available bandwidth between the first frame and a preceding frame; and

15 subtracting from the accumulative bandwidth record an amount of bandwidth consumed by the encoded frame.

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6. The method of Claim 4 wherein the second frame is subsequent to the first frame in the motion video signal.

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7. The method of Claim 4 wherein the step of adjusting the quantization parameter comprises:

determining that the accumulated bandwidth record represents accumulated bandwidth in excess of the desired range; and

decreasing the quantization parameter to increase bandwidth consumed by encoding of subsequent frames of the motion video signal.

8. The method of Claim 4 wherein the step of adjusting the quantization parameter

comprises:

determining that the accumulated bandwidth record represents accumulated bandwidth which is below the desired range; and

increasing the quantization parameter to decrease bandwidth consumed by encoding of subsequent frames of the motion video signal.

9. A method for encoding a motion video signal, the method comprising:
measuring a first difference between first and second frames of the motion video signal;

measuring a second difference between the second frame and a third frame of the motion video signal;

determining a third difference between the first and second differences;

comparing the third difference to a predetermined threshold;

adjusting a quantization parameter if the third difference is greater than the predetermined threshold; and

encoding the third frame according to the quantization parameter as adjusted.

10. The method of Claim 9 wherein the first and second differences are absolute pixel differences.

11. The method of Claim 9 wherein the step of comparing comprises determining that the second difference is greater than the first difference; and

further wherein the step of adjusting comprises increasing the quantization parameter.

12. The method of Claim 9 wherein the step of comparing comprises determining that the second difference is less than the first difference; and

further wherein the step of adjusting comprises decreasing the quantization

parameter.

13. A method for encoding a motion video signal, the method comprising:
comparing first and second frames of the motion video signal to one another;
5 determining whether the second frame represents a scene change in a motion video
image represented by the motion video image;
encoding the second frame as an independent frame upon a condition in which the
second frame represents the scene change in the motion video image; and
encoding the second frame as a motion-compensated frame upon a condition in
10 which the second frame does not represent the scene change in the motion video image.

14. The method of Claim 13 wherein the step of determining comprises:
measuring a difference between the first and second frames;
comparing the difference to a predetermined threshold;
15 determining that the second frame represents the scene change if the difference is
greater than the predetermined threshold; and
determining that the second frame does not represent the scene change if the
difference is not greater than the predetermined threshold.

20 15. The method of Claim 14 wherein the difference is an absolute pixel difference.

16. A computer readable medium useful in association with a computer which includes
a processor and a memory, the computer readable medium including computer instructions which
are configured to cause the computer to perform the steps of:

25 determining a desired size for a first frame of the motion video signal;
encoding the first frame of the motion video signal to form an encoded frame;
determining an encoded size of the encoded frame;
comparing the encoded size to the desired size;

adjusting a quantization parameter such that encoding the first frame according to the quantization parameter as adjusted would form a different encoded frame having a size closer to the desired size than the encoded size is to the desired size; and

encoding a second frame of the motion video signal according to the quantization parameter as adjusted.

17. The computer readable medium of Claim 16 wherein the second frame is subsequent to the first frame in the motion video signal.

18. The computer readable medium of Claim 16 wherein the step of adjusting comprises:

determining a difference between the encoded size and the desired size; and
adjusting the quantization parameter by an amount which is proportional to the difference.

19. A computer readable medium useful in association with a computer which includes a processor and a memory, the computer readable medium including computer instructions which are configured to cause the computer to perform the steps of:

initializing an accumulated bandwidth record;
encoding a first frame of the motion video signal to form an encoded frame;
determining a consumed bandwidth of the encoded frame;
adjusting the accumulated bandwidth record according to the consumed bandwidth;

comparing the accumulated bandwidth record to a desired range of acceptable accumulated bandwidth;

adjusting a quantization parameter such that encoding subsequent frames of the motion video signal according to the quantization parameter as adjusted consumes bandwidth in a manner which compensates for a deviation from the desired range of

acceptable bandwidth by the accumulated bandwidth record; and

encoding a second frame of the motion video signal according to the quantization parameter as adjusted.

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20. The computer readable medium of Claim 19 wherein the step of adjusting the accumulated bandwidth record comprises:

adding to the accumulative bandwidth record an amount of available bandwidth between the first frame and a preceding frame; and

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subtracting from the accumulative bandwidth record an amount of bandwidth consumed by the encoded frame.

21. The computer readable medium of Claim 19 wherein the second frame is subsequent to the first frame in the motion video signal.

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22. The computer readable medium of Claim 19 wherein the step of adjusting the quantization parameter comprises:

determining that the accumulated bandwidth record represents accumulated bandwidth in excess of the desired range; and

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decreasing the quantization parameter to increase bandwidth consumed by encoding of subsequent frames of the motion video signal.

23. The computer readable medium of Claim 19 wherein the step of adjusting the quantization parameter comprises:

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determining that the accumulated bandwidth record represents accumulated bandwidth which is below the desired range; and

increasing the quantization parameter to decrease bandwidth consumed by encoding of subsequent frames of the motion video signal.

24. A computer readable medium useful in association with a computer which includes a processor and a memory, the computer readable medium including computer instructions which are configured to cause the computer to perform the steps of:

5 measuring a first difference between first and second frames of the motion video signal;
 measuring a second difference between the second frame and a third frame of the motion video signal;
 determining a third difference between the first and second differences;
 comparing the third difference to a predetermined threshold;
10 adjusting a quantization parameter if the third difference is greater than the predetermined threshold; and
 encoding the third frame according to the quantization parameter as adjusted.

15 25. The computer readable medium of Claim 24 wherein the first and second differences are absolute pixel differences.

20 26. The computer readable medium of Claim 24 wherein the step of comparing comprises determining that the second difference is greater than the first difference; and
 further wherein the step of adjusting comprises increasing the quantization parameter.

25 27. The computer readable medium of Claim 24 wherein the step of comparing comprises determining that the second difference is less than the first difference; and
 further wherein the step of adjusting comprises decreasing the quantization parameter.

28. A computer readable medium useful in association with a computer which includes a processor and a memory, the computer readable medium including computer instructions which

are configured to cause the computer to perform the steps of:

comparing first and second frames of the motion video signal to one another;

determining whether the second frame represents a scene change in a motion video image represented by the motion video image;

5 encoding the second frame as an independent frame upon a condition in which the second frame represents the scene change in the motion video image; and

encoding the second frame as a motion-compensated frame upon a condition in which the second frame does not represent the scene change in the motion video image.

10 29. The computer readable medium of Claim 28 wherein the step of determining comprises:

measuring a difference between the first and second frames;

comparing the difference to a predetermined threshold;

15 determining that the second frame represents the scene change if the difference is greater than the predetermined threshold; and

determining that the second frame does not represent the scene change if the difference is not greater than the predetermined threshold.

20 30. The computer readable medium of Claim 29 wherein the difference is an absolute pixel difference.

31. A computer system comprising:

a processor;

a memory operatively coupled to the processor; and

25 a motion video signal encoder which executes in the processor from the memory and which, when executed by the processor, performs the steps of:

determining a desired size for a first frame of the motion video signal;

encoding the first frame of the motion video signal to form an encoded

frame;

determining an encoded size of the encoded frame;

comparing the encoded size to the desired size;

adjusting a quantization parameter such that encoding the first frame
according to the quantization parameter as adjusted would form a different
encoded frame having a size closer to the desired size than the encoded size is to
the desired size; and

encoding a second frame of the motion video signal according to the
quantization parameter as adjusted.

32. The computer system of Claim 31 wherein the second frame is subsequent to the
first frame in the motion video signal.

33. The computer system of Claim 31 wherein the step of adjusting comprises:
determining a difference between the encoded size and the desired size; and
adjusting the quantization parameter by an amount which is proportional to the
difference.

34. A computer system comprising:
a processor;
a memory operatively coupled to the processor; and
a motion video signal encoder which executes in the processor from the memory
and which, when executed by the processor, performs the steps of:

initializing an accumulated bandwidth record;

encoding a first frame of the motion video signal to form an encoded

frame;

determining a consumed bandwidth of the encoded frame;

adjusting the accumulated bandwidth record according to the consumed

bandwidth;

comparing the accumulated bandwidth record to a desired range of acceptable accumulated bandwidth;

adjusting a quantization parameter such that encoding subsequent frames of the motion video signal according to the quantization parameter as adjusted consumes bandwidth in a manner which compensates for a deviation from the desired range of acceptable bandwidth by the accumulated bandwidth record; and

encoding a second frame of the motion video signal according to the quantization parameter as adjusted.

35. The computer system of Claim 34 wherein the step of adjusting the accumulated bandwidth record comprises:

adding to the accumulative bandwidth record an amount of available bandwidth between the first frame and a preceding frame; and

subtracting from the accumulative bandwidth record an amount of bandwidth consumed by the encoded frame.

36. The computer system of Claim 34 wherein the second frame is subsequent to the first frame in the motion video signal.

37. The computer system of Claim 34 wherein the step of adjusting the quantization parameter comprises:

determining that the accumulated bandwidth record represents accumulated bandwidth in excess of the desired range; and

decreasing the quantization parameter to increase bandwidth consumed by encoding of subsequent frames of the motion video signal.

38. The computer system of Claim 34 wherein the step of adjusting the quantization

parameter comprises:

determining that the accumulated bandwidth record represents accumulated bandwidth which is below the desired range; and

increasing the quantization parameter to decrease bandwidth consumed by encoding of subsequent frames of the motion video signal.

39. A computer system comprising:

a processor;

a memory operatively coupled to the processor; and

a motion video signal encoder which executes in the processor from the memory and which, when executed by the processor, performs the steps of:

measuring a first difference between first and second frames of the motion video signal;

measuring a second difference between the second frame and a third frame of the motion video signal;

determining a third difference between the first and second differences;

comparing the third difference to a predetermined threshold;

adjusting a quantization parameter if the third difference is greater than the predetermined threshold; and

encoding the third frame according to the quantization parameter as adjusted.

40. The computer system of Claim 39 wherein the first and second differences are absolute pixel differences.

41. The computer system of Claim 39 wherein the step of comparing comprises determining that the second difference is greater than the first difference; and

further wherein the step of adjusting comprises increasing the quantization parameter.

42. The computer system of Claim 39 wherein the step of comparing comprises determining that the second difference is less than the first difference; and further wherein the step of adjusting comprises decreasing the quantization parameter.

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43. A computer system comprising:
a processor;
a memory operatively coupled to the processor; and
a motion video signal encoder which executes in the processor from the memory
10 and which, when executed by the processor, performs the steps of:
comparing first and second frames of the motion video signal to one another;
determining whether the second frame represents a scene change in a motion video image represented by the motion video image;
encoding the second frame as an independent frame upon a condition in which the
15 second frame represents the scene change in the motion video image; and
encoding the second frame as a motion-compensated frame upon a condition in which the second frame does not represent the scene change in the motion video image.

20 44. The computer system of Claim 43 wherein the step of determining comprises:
measuring a difference between the first and second frames;
comparing the difference to a predetermined threshold;
determining that the second frame represents the scene change if the difference is greater than the predetermined threshold; and
determining that the second frame does not represent the scene change if the
25 difference is not greater than the predetermined threshold.

45. The computer system of Claim 44 wherein the difference is an absolute pixel difference.